Model SADPmini-Ex

Intrinsically Safe Hand-Held Automatic Dewpoint Hygrometer
Ranges available between -110°C to +20°C (-166°F to +68°F) dewpoint

The **Model SADP*mini*-Ex** Automatic Dewpoint Hygrometer is a popular global choice for measureing the Dewpoint (moisture content) in gases and dry compressed air and is perfect for mobile analysis in Hazardous Areas.

Ultra Compact - Ultra Portable - Ultra Functional - Easy to Use - The Popular Global Choice.

CE Measuring instrument conforms with EN 61326

Desiccant Dry Down Technology

Features

- Certified Intrinsically Safe for use in explosive atmospheres:
  Ex II 1G Ex ia IIC T4 Ga (T_a -20°C to +40°C)
  II 1G Ex ia IIC T3 Ga (T_a -20°C to +50°C)
- Automatic Calibration (AutoCal)
- Various ranges available from -110°C to +20°C dewpoint
- Rechargeable battery - Over 80 hours of continuous operation on full charge
- User selectable units - °C, °F, ppm, ppm(w), ppb, g/m3, lbs/MMSCF
- "Desiccant Dry Down Assembly" for quick measurements
- RS485 serial communication and 4-20mA analogue output
- Real time graphic logging to PC (Safe area only)
- Advanced DATA logging & PC download
- Pressure correction computation
- True hand held Portable Device – weighing less than 1.2 kgs
- Robust ergonomically designed custom housing
- Fully self-contained and user friendly
- Capture and display of up to 16000 data points, with 20 user-definable TAG refs
- Non Ex also available - ask for SADP*mini*

Applications

- Natural gas production
- Petro chemical production
- Power stations
- Industrial process gases
- Explosive gases
- Gas cylinder testing
- Laboratory and research

See a short video of the SADP*mini*-Ex at www.amsystems.co.uk

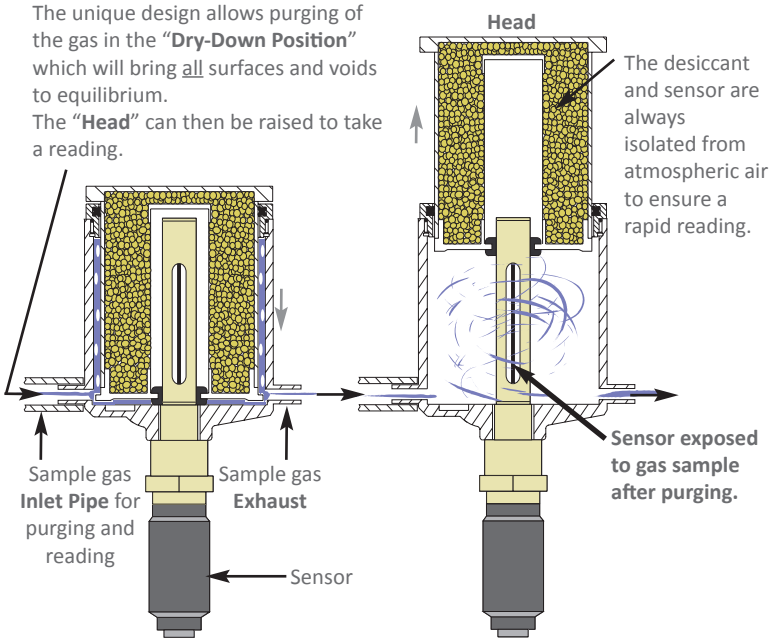
Desiccant Dry Down Technology

The Desiccant Head Assembly

Keeping the sensor dry between tests ensures that the SADP*mini*-Ex is always ready to carry out rapid spot checks. The unique design of the Desiccant Head achieves this by surrounding the sensor with desiccant before the head is raised for sampling.

At no time is the sensor allowed to come into contact with ambient air. The chamber is also designed so that the void space and chamber wall surfaces are purged with sample gas, before exposure of the sensor, so giving faster, more accurate and reliable results.

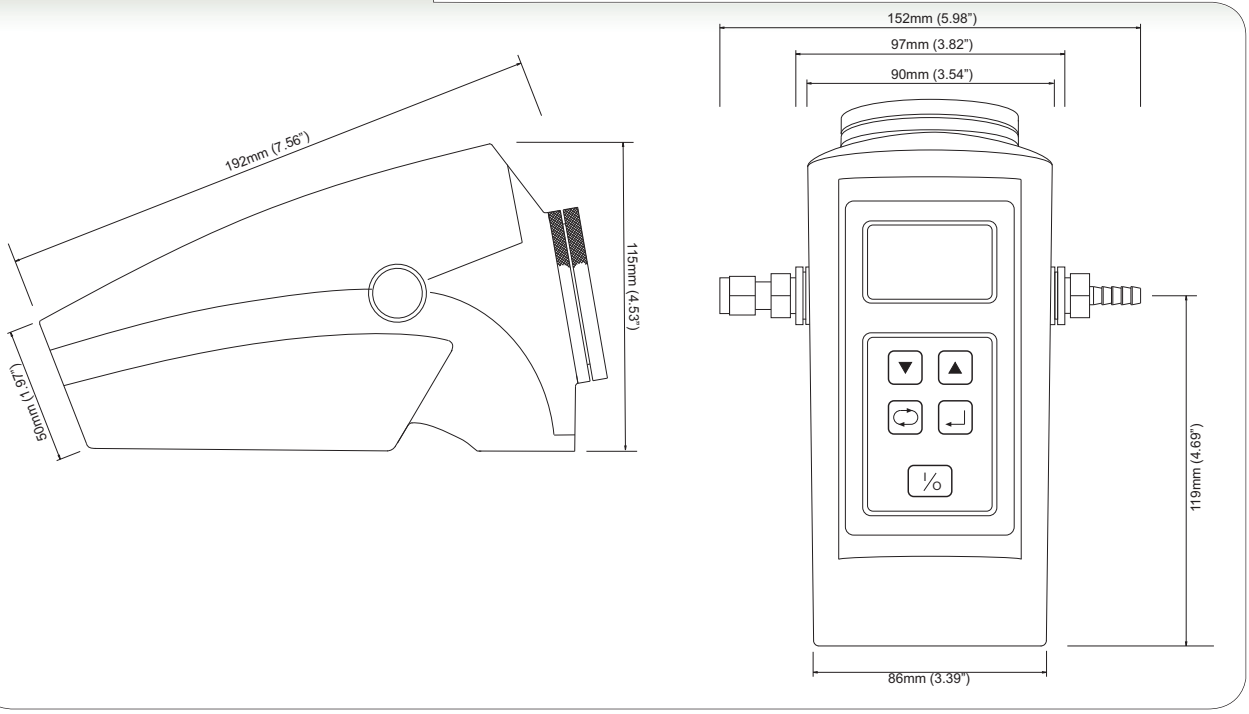
The unique design allows purging of the gas in the "**Dry-Down Position**" which will bring all surfaces and voids to equilibrium.
The "**Head**" can then be raised to take a reading.


Head
The desiccant and sensor are always isolated from atmospheric air to ensure a rapid reading.
Sample gas **Inlet Pipe** for purging and reading
Sample gas **Exhaust**
Sensor
Sensor exposed to gas sample after purging.
Dry-Down Position
Read Position

The SADP*mini*-Ex has been specifically designed to be Intrinsically Safe in hazardous environments and because of this it can be used in a wide range of applications including natural gas production, petrochemical production and explosive gases.

This robust, ergonomically designed housing incorporates the moisture sensor, signal conditioning circuitry, memory management, 128 x 64 dot graphics display, 5 key membrane keyboard plus on-board rechargeable lithium-ion battery. This self contained digital unit is user friendly and eliminates the problems experienced by operators and technicians with the bulky size, weight and even analogue readouts associated with the previous generation of traditional dewpoint meters.

Dimensions



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Specifications

TYPE B

SENSING ELEMENT: Ultra High-Capacitance Aluminium Oxide Type

RANGE IN DEW POINT:

SR:	-110°C	to	-20°C	(-166°F to -4°F)	dewpoint
PL:	-100°C	to	0°C	(-148°F to +32°F)	dewpoint
RD:	-80°C	to	-20°C	(-112°F to -4°F)	dewpoint
GY:	-80°C	to	0°C	(-112°F to +32°F)	dewpoint
BL:	-80°C	to	+20°C	(-112°F to +68°F)	dewpoint

DISPLAY UNITS:

°C - Degrees Centigrade dew / frost Point
°F - Degrees Fahrenheit dew / frost Point
ppm(v) - Parts per million (volume)
ppb(v) - Parts per billion (volume)
ppm(w) - Parts per million (weight)
g/m³ - Grams per cubic metre
lbs/MMSCF - Pounds per million standard cubic feet

DISPLAY: Blue on Green, 128 x 64 pixel, Graphical LCD with LED backlight.

SENSOR CALIBRATION ACCURACY: Better than ±2°C dewpoint. Each unit supplied with a Certificate of Calibration, traceable to National & International Standards - National Physical Laboratory (UK) / NIST (USA).

AUTOMATIC CALIBRATION: Electronic "Span Check". Performed by user following simple menu driven instructions. Can be password protected to avoid unauthorised tamper.

REPEATABILITY: Better than ±0.2°C dew point

POWER SUPPLY: Rechargeable Li-Ion Battery. Battery charger included.

BATTERY LIFE: In excess of 80 hours of continuous use on full charge at 20°C/68°F.

TIME TO FULL CHARGE: 14 hours

KEYBOARD: 5 Membrane covered, metallic dome tactile keys.

PRESSURE CORRECTION: Integral calculator to display pressure dew points. Gauge pressure can be entered in kPa, kg/cm2, bar or psi.

TEMPERATURE COEFFICIENT: Temperature compensated for operating range.

GAS SAMPLE CONNECTIONS: Ports accept Swagelok® VCO type coupling (9/16" x 18 UNF). Supplied with either 6mm or 1/4" Swagelok® SS compression fitting on one side. The other side is fitted with a stainless steel push-on, "fir tree" type, hose connector for 6mm ID tube. Each unit is supplied with a 2m length of 6mm ID PTFE tube.

ELECTRICAL CONNECTIONS: 9 Pin "D" type for 4-20mA analogue output, RS485 Serial Communications and PC interface. Separate socket for battery charger.

OPERATING TEMPERATURE: -20°C to +50°C

STORAGE TEMPERATURE & HUMIDITY: -40°C to +80°C / 95% RH Non-condensing

OPERATING PRESSURE: Atmospheric pressure, maximum 30kPag (0.3barg / 4 psig).

OPERATING HUMIDITY (External): 95% RH Non-condensing

TYPICAL RESPONSE TIMES:
Wet to Dry: -10°C to -60°C - less than 120 seconds
Dry to Wet: -110°C to -20°C - less than 20 seconds

SAMPLE FLOW RATE: Flow independent, but ideally 2 to 5 litres per minute. Max: 10 litres/min.

REPLACEMENT DESICCANT: Field Interchangeable.

SENSOR LIFE: Between 5 & 10 years - depending on application.

REPLACEMENT SENSOR: Field Interchangeable.

ELECTROMAGNETIC COMPATIBILITY (EMC): Product complies with the objectives and requirements of EMC Directive 89/336/EEC, amended 92/31/EEC.

SECURITY: Multi level password protection.

WARM UP TIME: 10 seconds

WEATHERPROOF CLASSIFICATION: IP54 / NEMA12

WARRANTY: 2 years for faulty workmanship and defective parts.

WEIGHT: 1.2kgs (2.65lbs)

DIMENSIONS: 192 x 97 x 115 mms (7.5 x 3.8 x 4.5 inches)

MATERIALS OF CONSTRUCTION: Sensor in metal housing. Outer case custom manufactured in, stainless steel impregnated, high impact Polybutylene Terephthalate (PBT).

ACCESSORIES INCLUDED: Anti-static carrying case for use in hazardous areas. 2m PTFE Sampling pipe, Universal Battery Charger, User Manual.

TYPE F OPTION

As TYPE B ABOVE plus following additional specifications & features:

ANALOGUE OUTPUT: Externally powered 4-20mA loop. Linear output with unit selected. Span easily configured by user. ▲

Max. load = 50 x (V_{EXT} - 0.6) - 105
V_{EXT} = Supply voltage.
(Eg. For 24V supply, Max. load = 1065Ω

ACCESSORIES INCLUDED: 4-20mA connector for analogue output.

TYPE L OPTION

As TYPE B ABOVE plus following additional specifications and features:

DATA LOGGING: 16,000 samples. Date and time stamped data, stored in chosen units of measurement for download to PC.

DATA LOCATION: 20 separate locations (Tags) can be entered (alpha-numerical) by user for data collection at pre-programmed locations.

SAMPLING RATES: User selectable (in intervals of 6 seconds) from once every 6 seconds to once a day.

DATA DISPLAY: Numerical and Graphical display of data on SADP*mini* -Ex screen.

REAL TIME RECORDING: Device can be programmed to monitor, record and graphically present data in real time directly to PC. ▲

SERIAL COMMUNICATIONS: RS485, baud rate 9600 - half duplex.

ANALOGUE OUTPUT: Externally powered 4-20mA loop. Linear output with unit selected. Span easily configured by user. ▲
Max. load = 50 x (V_{EXT} - 0.6) - 105
V_{EXT} = Supply voltage.
(Eg. For 24V supply, Max. load = 1065Ω)

ACCESSORIES INCLUDED: 4-20mA / RS485 Connector for analogue output and serial communications. Serial or USB (Isolated / self powered) interface, with cables, for "Real Time Logging" and data download to PC. Software supplied on CD.

SYSTEM REQUIREMENT: Windows® XP or later for Serial USB connection to PC.

Hazardous Area (Ex) Carrying Case

SADPmini-Ex comes with a hard wearing, padded nylon anti-static carrying case, custom manufactured with carry handle, belt loop and adjustable shoulder strap designed for use in hazardous areas.

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▲ = Safe area use only

How to Order

Model SADP*mini*-Ex - [XX] - [X] - [X] - [XX] - [X]

RANGE IN DEW POINT = XX:

SR:	-110°C to	-20°C	(-166°F to -4°F)	dewpoint
PL:	-100°C to	0°C	(-148°F to +32°F)	dewpoint
RD:	-80°C to	-20°C	(-112°F to -4°F)	dewpoint
GY:	-80°C to	0°C	(-112°F to +32°F)	dewpoint
BL:	-80°C to	+20°C	(-112°F to +68°F)	dewpoint

PC CONNECTION = X

U: USB (Windows®XP or later)

(Choose only for **Type L**.
Leave blank for Type B or Type F)

TYPE = X (see specifications)

B: Standard
F: With 4-20mA Analogue Output
L: With logging, RS485 Comms. and 4-20mA Output

SAMPLE CONNECTION = X

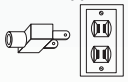
4: 0.25" (1/4") - Swagelok® SS Compression Type
6: 6 mm - Swagelok® SS Compression Type
8: 0.125" (1/8") - Swagelok® SS Compression Type

MAINS PLUG TYPE-
For Battery Charger = XX

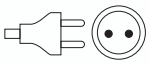
UK: Standard UK, 3 Square pin
US: 2 Vertical Flat Blade
EU: 2 Round Pins
AU: 2 Oblique Flat Blades with Ground
(see diagrams below)

UK Type

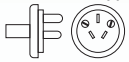
US Type



EU Type



Australian Type



EXAMPLE:

To order device with range -80°C to 0°C dewpoint, with logging capabilities, 6mm pipe connection, for use in UK and to be used with a USB type PC port, order as:

Model SADP*mini*-Ex - GY-L-6-UK-U

SADP*mini*-Ex comes with an Anti-Static Carrying Case for Hazardous areas as standard.

Note: Gases to Avoid

The moisture sensors are suitable for many different industrial and research applications. Most gases can be checked for their moisture content with no need for the calibration to be altered when changing between different gases, as the sensor operates only with reference to the water vapour content. There are, however, some gases that must be avoided, as they are not compatible with the material of construction of the sensor. Ammonia (NH_3), Ozone(O_3) and Chlorine (Cl) must be avoided at all times, even in small quantities. Hydrogen Chloride (HCl) also attacks the sensors very quickly. Some, less aggressive, acidic gases, such as Sulphur Dioxide (SO_2), can be monitored, as long as the moisture content is low, generally less than 100ppm(v). If in doubt, please ask your supplier. Sulphur Hexaflouride (SF_6) has no effect on the sensor.

Distributor Information

1681 SADPmini-Ex pd111115-Issue 4

CERTIFICATE No. FM35600
BS EN ISO 9001:2008

Institute of Measurement and Control
Companion Company

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